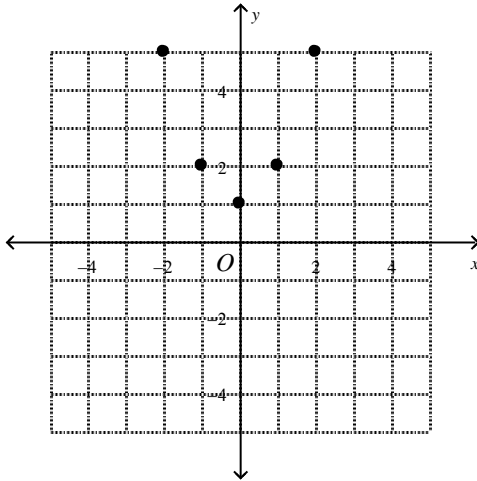


AFM Unit 2A Review Sheet

Multiple Choice

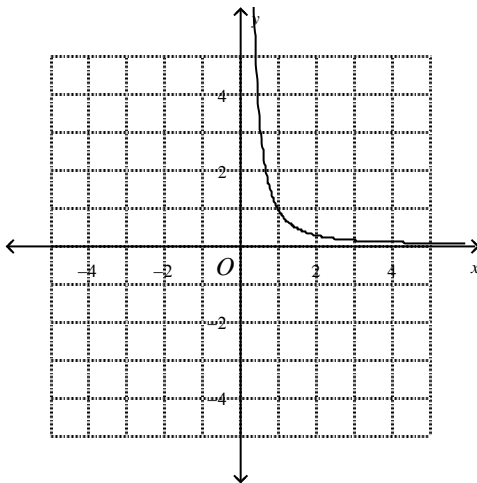
Identify the choice that best completes the statement or answers the question.

- ___ 1. Write the ordered pairs for the relation. Find the domain and range.



- a. $\{(-2, 5), (-1, 2), (0, 1), (1, 2), (2, 5)\}$; domain: $\{-2, -1, 0, 1, 2\}$; range: $\{1, 2, 5\}$
- b. $\{(5, -2), (2, -1), (1, 0), (2, 1), (5, 2)\}$; domain: $\{-2, -1, 0, 1, 2\}$; range: $\{1, 2, 5\}$
- c. $\{(-2, 5), (-1, 2), (0, 1), (1, 2), (2, 5)\}$; domain: $\{1, 2, 5\}$; range: $\{-2, -1, 0, 1, 2\}$
- d. $\{(5, -2), (2, -1), (1, 0), (2, 1), (5, 2)\}$; domain: $\{1, 2, 5\}$; range: $\{-2, -1, 0, 1, 2\}$

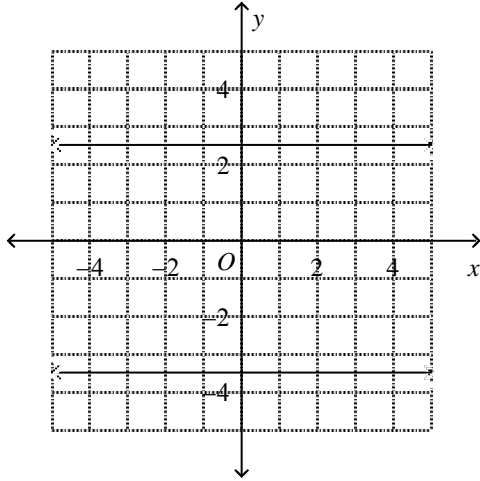
- ___ 2. Find the domain and range of the relation and determine whether it is a function.



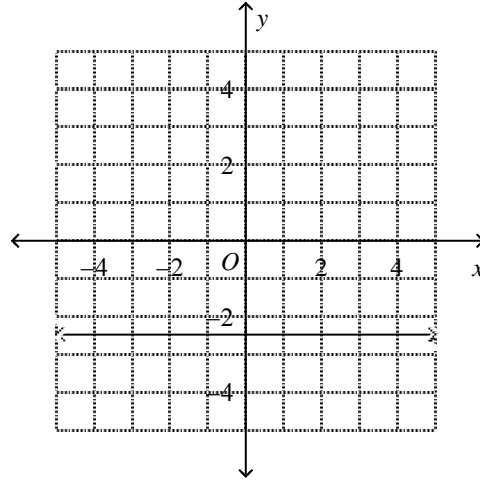
- a. Domain: all real numbers; range: all real numbers; yes, it is a function
- b. Domain: $x > 0$; range: $y > 0$; yes, it is a function.
- c. Domain: positive integers; range: positive integers; no, it is not a function.
- d. Domain: $x \geq 0$; range: $y \leq 0$; no, it is not a function.

- ___ 3. Use the vertical-line test to determine which graph represents a function.

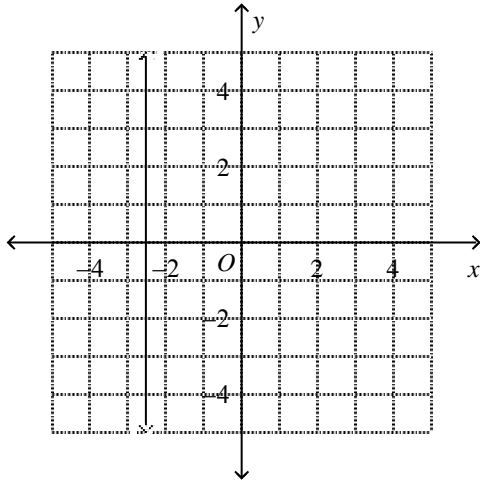
a.



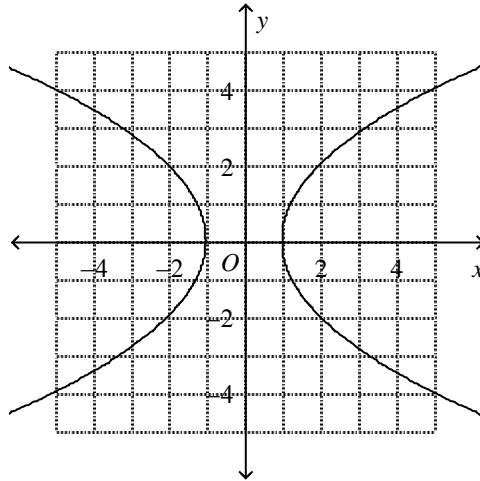
c.



b.



d.



Determine whether y varies directly with x . If so, find the constant of variation k .

- _____ 4. $-6y = -5x$
 a. yes; $\frac{5}{6}$ b. yes; $\frac{6}{5}$ c. yes; -5 d. no
- _____ 5. The range of a car is the distance R in miles that a car can travel on a full tank of gas. The range varies directly with the capacity of the gas tank C in gallons.
 a. Find the constant of variation for a car whose range is 341 mi with a gas tank that holds 22 gal.
 b. Write an equation to model the relationship between the range and the capacity of the gas tank.
- a. $15\frac{1}{2}$ mi/gal; $R = 15\frac{1}{2}C$ c. $\frac{2}{31}$ mi/gal; $R = \frac{2}{31}C$
 b. $15\frac{1}{2}$ mi/gal; $C = 15\frac{1}{2}R$ d. 7502 mi/gal; $RC = 7502$
- _____ 6. A leaky valve on the water meter overcharges the residents for one gallon of water in every $2\frac{1}{2}$ months. The overcharged amount w varies directly with time t .

- a. Find the equation that models this direct variation.
 b. How many months it will take for the residents to be overcharged for 8 gallons of water?

a. $w = \frac{2}{5}t$; 20 months

c. $w = \frac{2}{5}t$; $3\frac{1}{5}$ months

b. $w = \frac{5}{2}t$; 20 months

d. $w = \frac{5}{2}t$; $3\frac{1}{5}$ months

Find the value of y for a given value of x , if y varies directly with x .

- ___ 7. If $y = 166$ when $x = 83$, what is y when $x = 23$?
 a. 11.5 b. -11.5 c. -46 d. 46
- ___ 8. If $y = 4.8$ when $x = 2.4$, what is y when $x = 2.05$?
 a. 4.1 b. 1.03 c. -1.03 d. -4.1
- ___ 9. The distance traveled at a constant speed is directly proportional to the time of travel. If Olivia traveled 112 miles in 3.5 hours, how many miles will Olivia travel in 8.9 hours at the same constant speed?
 a. 99.6 mi b. 284.8 mi c. 172.8 mi d. 124.4 mi
- ___ 10. Use a graphing calculator to find the relative minimum, relative maximum, and zeros of $y = 3x^3 + 15x^2 - 12x - 60$. If necessary, round to the nearest hundredth.
 a. relative minimum: $(-62.24, 0.36)$, relative maximum: $(37.79, -3.69)$, zeros: $x = 5, -2, 2$
 b. relative minimum: $(0.36, -62.24)$, relative maximum: $(-3.69, 37.79)$, zeros: $x = -5, -2, 2$
 c. relative minimum: $(0.36, -62.24)$, relative maximum: $(-3.69, 37.79)$, zeros: $x = 5, -2$
 d. relative minimum: $(-62.24, 0.36)$, relative maximum: $(37.79, -3.69)$, zeros: $x = -5, -2$
- ___ 11. Suppose that x and y vary inversely, and $x = 7$ when $y = 11$. Write the function that models the inverse variation.
 a. $y = 1.57x$ c. $y = \frac{4}{x}$
 b. $y = \frac{77}{x}$ d. $y = \frac{18}{x}$
- ___ 12. Suppose that x and y vary inversely and that $y = \frac{1}{6}$ when $x = 3$. Write a function that models the inverse variation and find y when $x = 10$.
 a. $y = \frac{1}{2x}$; 20 c. $y = \frac{1}{6x}$; 6
 b. $y = \frac{1}{6x}$; 20 d. $y = \frac{1}{18x}$; 54
- ___ 13. Suppose that y varies directly with x and inversely with z $y = 25$ when $x = 35$, and $z = 7$. Write the equation that models the relationship. Then find y when $x = 12$ and $z = 4$.

a. $y = \frac{5z}{x}; 3$

c. $y = \frac{7z}{x}; 3$

b. $y = \frac{7x}{z}; 21$

d. $y = \frac{5x}{z}; 15$

____ 14. Suppose that y varies jointly with w and x and inversely with z and $y = 360$ when $w = 8$, $x = 25$ and $z = 5$. Write the equation that models the relationship. Then find y when $w = 4$, $x = 4$ and $z = 3$.

a. $y = \frac{9wx}{z}; 48$

c. $y = \frac{5wx}{z}; 80$

b. $y = \frac{5z}{wx}; 15$

d. $y = \frac{9z}{wx}; 16$

____ 15. Find the domain and range of the relation.

Age of Person	Books Read
65	42
36	37
29	37
29	17

a. domain: {29, 29, 36}
range: {17, 37, 42}

c. domain: {29, 36, 65}
range: {37, 37, 42}

b. domain: {29, 29, 36}
range: {37, 37, 42}

d. domain: {29, 36, 65}
range: {17, 37, 42}

AFM Unit 2A Review Sheet

Answer Section

MULTIPLE CHOICE

1. ANS: A PTS: 1 DIF: L1 REF: 2-1 Relations and Functions
OBJ: 2-1.1 Graphing Relations
NAT: NAEP A2b | NAEP A2e | CAT5.LV21/22.54 | IT.LV17/18.AM | S9.TSK3.PRA | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.14 | TV.LV21/22.16 | TV.LVALG.56
STA: NC 2.03a TOP: 2-1 Example 2
KEY: ordered pair | domain | range | relation
MSC: NAEP A2b | NAEP A2e | CAT5.LV21/22.54 | IT.LV17/18.AM | S9.TSK3.PRA | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.14 | TV.LV21/22.16 | TV.LVALG.56
2. ANS: B PTS: 1 DIF: L2 REF: 2-1 Relations and Functions
OBJ: 2-1.2 Identifying Functions
NAT: NAEP A2b | NAEP A2e | CAT5.LV21/22.54 | IT.LV17/18.AM | S9.TSK3.PRA | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.14 | TV.LV21/22.16 | TV.LVALG.56
STA: NC 2.03a TOP: 2-1 Example 5 KEY: domain | range | relation
MSC: NAEP A2b | NAEP A2e | CAT5.LV21/22.54 | IT.LV17/18.AM | S9.TSK3.PRA | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.14 | TV.LV21/22.16 | TV.LVALG.56
3. ANS: C PTS: 1 DIF: L1 REF: 2-1 Relations and Functions
OBJ: 2-1.2 Identifying Functions
NAT: NAEP A2b | NAEP A2e | CAT5.LV21/22.54 | IT.LV17/18.AM | S9.TSK3.PRA | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.14 | TV.LV21/22.16 | TV.LVALG.56
STA: NC 2.03a TOP: 2-1 Example 5 KEY: graphing | vertical-line test
MSC: NAEP A2b | NAEP A2e | CAT5.LV21/22.54 | IT.LV17/18.AM | S9.TSK3.PRA | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.14 | TV.LV21/22.16 | TV.LVALG.56
4. ANS: A PTS: 1 DIF: L1 REF: 2-3 Direct Variation
OBJ: 2-3.1 Writing and Interpreting a Direct Variation
NAT: NAEP A2a | NAEP A2b | CAT5.LV21/22.50 | CAT5.LV21/22.54 | IT.LV17/18.AM | S9.TSK3.PRA | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.16 | TV.LV21/22.52 | TV.LVALG.54
STA: NC 1.05 TOP: 2-3 Example 2 KEY: constant of variation
MSC: NAEP A2a | NAEP A2b | CAT5.LV21/22.50 | CAT5.LV21/22.54 | IT.LV17/18.AM | S9.TSK3.PRA | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.16 | TV.LV21/22.52 | TV.LVALG.54
5. ANS: A PTS: 1 DIF: L1 REF: 2-3 Direct Variation
OBJ: 2-3.1 Writing and Interpreting a Direct Variation
NAT: NAEP A2a | NAEP A2b | CAT5.LV21/22.50 | CAT5.LV21/22.54 | IT.LV17/18.AM | S9.TSK3.PRA | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.16 | TV.LV21/22.52 | TV.LVALG.54
STA: NC 1.05 TOP: 2-3 Example 3
KEY: constant of variation | direct variation | multi-part question | word problem | problem solving
MSC: NAEP A2a | NAEP A2b | CAT5.LV21/22.50 | CAT5.LV21/22.54 | IT.LV17/18.AM | S9.TSK3.PRA | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.16 | TV.LV21/22.52 | TV.LVALG.54
6. ANS: A PTS: 1 DIF: L2 REF: 2-3 Direct Variation
OBJ: 2-3.1 Writing and Interpreting a Direct Variation
NAT: NAEP A2a | NAEP A2b | CAT5.LV21/22.50 | CAT5.LV21/22.54 | IT.LV17/18.AM | S9.TSK3.PRA | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.16 | TV.LV21/22.52 | TV.LVALG.54
STA: NC 1.05 TOP: 2-3 Example 3
KEY: constant of variation | direct variation | multi-part question | problem solving | word problem
MSC: NAEP A2a | NAEP A2b | CAT5.LV21/22.50 | CAT5.LV21/22.54 | IT.LV17/18.AM | S9.TSK3.PRA |

- S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.16 | TV.LV21/22.52 | TV.LVALG.54
7. ANS: D PTS: 1 DIF: L1 REF: 2-3 Direct Variation
OBJ: 2-3.1 Writing and Interpreting a Direct Variation
NAT: NAEP A2a | NAEP A2b | CAT5.LV21/22.50 | CAT5.LV21/22.54 | IT.LV17/18.AM | S9.TSK3.PRA | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.16 | TV.LV21/22.52 | TV.LVALG.54
STA: NC 1.05 TOP: 2-3 Example 4 KEY: direct variation
MSC: NAEP A2a | NAEP A2b | CAT5.LV21/22.50 | CAT5.LV21/22.54 | IT.LV17/18.AM | S9.TSK3.PRA | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.16 | TV.LV21/22.52 | TV.LVALG.54
8. ANS: A PTS: 1 DIF: L1 REF: 2-3 Direct Variation
OBJ: 2-3.1 Writing and Interpreting a Direct Variation
NAT: NAEP A2a | NAEP A2b | CAT5.LV21/22.50 | CAT5.LV21/22.54 | IT.LV17/18.AM | S9.TSK3.PRA | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.16 | TV.LV21/22.52 | TV.LVALG.54
STA: NC 1.05 TOP: 2-3 Example 4 KEY: direct variation
MSC: NAEP A2a | NAEP A2b | CAT5.LV21/22.50 | CAT5.LV21/22.54 | IT.LV17/18.AM | S9.TSK3.PRA | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.16 | TV.LV21/22.52 | TV.LVALG.54
9. ANS: B PTS: 1 DIF: L1 REF: 2-3 Direct Variation
OBJ: 2-3.1 Writing and Interpreting a Direct Variation
NAT: NAEP A2a | NAEP A2b | CAT5.LV21/22.50 | CAT5.LV21/22.54 | IT.LV17/18.AM | S9.TSK3.PRA | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.16 | TV.LV21/22.52 | TV.LVALG.54
STA: NC 1.05 TOP: 2-3 Example 4
KEY: direct variation | proportion | problem solving | word problem
MSC: NAEP A2a | NAEP A2b | CAT5.LV21/22.50 | CAT5.LV21/22.54 | IT.LV17/18.AM | S9.TSK3.PRA | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.16 | TV.LV21/22.52 | TV.LVALG.54
10. ANS: B PTS: 1 DIF: L2 REF: 6-2 Polynomials and Linear Factors
OBJ: 6-2.1 The Factored Form of a Polynomial
NAT: NAEP A3b | NAEP A3c | CAT5.LV21/22.50 | CAT5.LV21/22.52 | CAT5.LV21/22.56 | IT.LV17/18.AM | IT.LV17/18.CP | S9.TSK3.GM | S9.TSK3.PRA | S10.TSK3.GM | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.13 | TV.LV21/22.52 | TV.LVALG.53
STA: NC 1.03 TOP: 6-2 Example 3
KEY: factoring a polynomial | graphing calculator | polynomial function | problem solving | x-intercept | relative maximum | relative minimum | zeros of a polynomial function
MSC: NAEP A3b | NAEP A3c | CAT5.LV21/22.50 | CAT5.LV21/22.52 | CAT5.LV21/22.56 | IT.LV17/18.AM | IT.LV17/18.CP | S9.TSK3.GM | S9.TSK3.PRA | S10.TSK3.GM | S10.TSK3.PRA | TV.LV21/22.10 | TV.LV21/22.13 | TV.LV21/22.52 | TV.LVALG.53
11. ANS: B PTS: 1 DIF: L1 REF: 9-1 Inverse Variation
OBJ: 9-1.1 Using Inverse Variation
NAT: NAEP A2e | CAT5.LV21/22.50 | CAT5.LV21/22.53 | CAT5.LV21/22.56 | IT.LV17/18.AM | IT.LV17/18.DI | IT.LV17/18.PS | S9.TSK3.DSP | S9.TSK3.GM | S9.TSK3.PRA | S10.TSK3.DSP | S10.TSK3.GM | S10.TSK3.PRA | TV.LV21/22.14 | TV.LV21/22.15 | TV.LV21/22.17 | TV.LV21/22.52 | TV.LVALG.53 | TV.LVALG.56 STA: NC 1.05 TOP: 9-1 Example 1
KEY: rational function | inverse variation
MSC: NAEP A2e | CAT5.LV21/22.50 | CAT5.LV21/22.53 | CAT5.LV21/22.56 | IT.LV17/18.AM | IT.LV17/18.DI | IT.LV17/18.PS | S9.TSK3.DSP | S9.TSK3.GM | S9.TSK3.PRA | S10.TSK3.DSP | S10.TSK3.GM | S10.TSK3.PRA | TV.LV21/22.14 | TV.LV21/22.15 | TV.LV21/22.17 | TV.LV21/22.52 | TV.LVALG.53 | TV.LVALG.56
12. ANS: A PTS: 1 DIF: L1 REF: 9-1 Inverse Variation
OBJ: 9-1.1 Using Inverse Variation
NAT: NAEP A2e | CAT5.LV21/22.50 | CAT5.LV21/22.53 | CAT5.LV21/22.56 | IT.LV17/18.AM | IT.LV17/18.DI | IT.LV17/18.PS | S9.TSK3.DSP | S9.TSK3.GM | S9.TSK3.PRA | S10.TSK3.DSP | S10.TSK3.GM | S10.TSK3.PRA | TV.LV21/22.14 | TV.LV21/22.15 | TV.LV21/22.17 | TV.LV21/22.52 |

TV.LVALG.53 | TV.LVALG.56 STA: NC 1.05 TOP: 9-1 Example 3
KEY: rational function | inverse variation
MSC: NAEP A2e | CAT5.LV21/22.50 | CAT5.LV21/22.53 | CAT5.LV21/22.56 | IT.LV17/18.AM |
IT.LV17/18.DI | IT.LV17/18.PS | S9.TSK3.DSP | S9.TSK3.GM | S9.TSK3.PRA | S10.TSK3.DSP |
S10.TSK3.GM | S10.TSK3.PRA | TV.LV21/22.14 | TV.LV21/22.15 | TV.LV21/22.17 | TV.LV21/22.52 |
TV.LVALG.53 | TV.LVALG.56

13. ANS: D PTS: 1 DIF: L1 REF: 9-1 Inverse Variation
OBJ: 9-1.2 Using Combined Variation
NAT: NAEP A2e | CAT5.LV21/22.50 | CAT5.LV21/22.53 | CAT5.LV21/22.56 | IT.LV17/18.AM |
IT.LV17/18.DI | IT.LV17/18.PS | S9.TSK3.DSP | S9.TSK3.GM | S9.TSK3.PRA | S10.TSK3.DSP |
S10.TSK3.GM | S10.TSK3.PRA | TV.LV21/22.14 | TV.LV21/22.15 | TV.LV21/22.17 | TV.LV21/22.52 |
TV.LVALG.53 | TV.LVALG.56 STA: NC 1.05 TOP: 9-1 Example 5

KEY: direct variation | combined variation
MSC: NAEP A2e | CAT5.LV21/22.50 | CAT5.LV21/22.53 | CAT5.LV21/22.56 | IT.LV17/18.AM |
IT.LV17/18.DI | IT.LV17/18.PS | S9.TSK3.DSP | S9.TSK3.GM | S9.TSK3.PRA | S10.TSK3.DSP |
S10.TSK3.GM | S10.TSK3.PRA | TV.LV21/22.14 | TV.LV21/22.15 | TV.LV21/22.17 | TV.LV21/22.52 |
TV.LVALG.53 | TV.LVALG.56

14. ANS: A PTS: 1 DIF: L2 REF: 9-1 Inverse Variation
OBJ: 9-1.2 Using Combined Variation
NAT: NAEP A2e | CAT5.LV21/22.50 | CAT5.LV21/22.53 | CAT5.LV21/22.56 | IT.LV17/18.AM |
IT.LV17/18.DI | IT.LV17/18.PS | S9.TSK3.DSP | S9.TSK3.GM | S9.TSK3.PRA | S10.TSK3.DSP |
S10.TSK3.GM | S10.TSK3.PRA | TV.LV21/22.14 | TV.LV21/22.15 | TV.LV21/22.17 | TV.LV21/22.52 |
TV.LVALG.53 | TV.LVALG.56 STA: NC 1.05 TOP: 9-1 Example 5

KEY: direct variation | combined variation | joint variation
MSC: NAEP A2e | CAT5.LV21/22.50 | CAT5.LV21/22.53 | CAT5.LV21/22.56 | IT.LV17/18.AM |
IT.LV17/18.DI | IT.LV17/18.PS | S9.TSK3.DSP | S9.TSK3.GM | S9.TSK3.PRA | S10.TSK3.DSP |
S10.TSK3.GM | S10.TSK3.PRA | TV.LV21/22.14 | TV.LV21/22.15 | TV.LV21/22.17 | TV.LV21/22.52 |
TV.LVALG.53 | TV.LVALG.56

15. ANS: D PTS: 1 DIF: L1 REF: 5-2 Relations and Functions
OBJ: 5-2.1 Identifying Relations and Functions
NAT: NAEP A1g | CAT5.LV19.53 | CAT5.LV19.54 | IT.LV15.DI | IT.LV15.PS | S9.TSK1.PRA |
S10.TSK1.PRA | TV.LV19.14 | TV.LV19.16 | TV.LVALG.56 STA: NC 4.01 | NC 4.01a
TOP: 5-2 Example 1 KEY: domain | range
MSC: NAEP A1g | CAT5.LV19.53 | CAT5.LV19.54 | IT.LV15.DI | IT.LV15.PS | S9.TSK1.PRA |
S10.TSK1.PRA | TV.LV19.14 | TV.LV19.16 | TV.LVALG.56